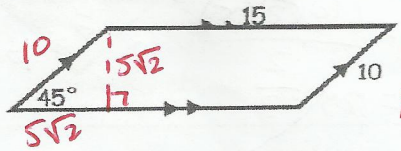
GT/Honors Geometry
Chapter 10 Review - Area

Name_____
Date_____ Period_____

For the following problems, find the area of the entire figure if nothing is shaded, or find the area of the shaded region if there is one. All answers should be exact unless you are asked to round.

1. A= $75\sqrt{2}\ u^2$

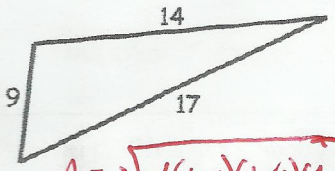


$A = bh$
$A = 15(5\sqrt{2})$
$A = 75\sqrt{2}$

2. ~~a~~ c = $4\pi\sqrt{6}$ cm The area of a circle is 24π cm^2. Find the circumference of this circle.

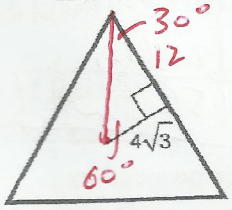
$A = \pi r^2$
$24\pi = \pi r^2$
$r^2 = 24$
$r = 2\sqrt{6}$
$C = 2\pi r$
$C = 2\pi(2\sqrt{6})$
$C = 4\pi\sqrt{6}$

3. A= $6\sqrt{110}\ u^2$



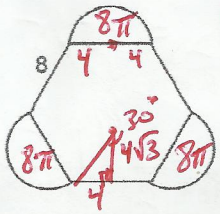
$A = \sqrt{s(s-a)(s-b)(s-c)}$
$s = \frac{9+14+17}{2}$
$A = \sqrt{20(11)(6)(3)}$
$A = \sqrt{4\cdot5\cdot11\cdot2\cdot3\cdot3}$
$A = 2\cdot3\sqrt{110}$
$A = 6\sqrt{110}$

4. A= $144\sqrt{3}\ u^2$ Equilateral Triangle



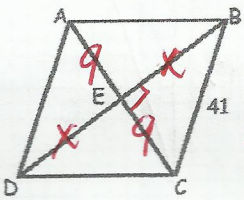
$A = \frac{1}{2}ap$
$A = \frac{1}{2}(4\sqrt{3})(72)$
$A = 144\sqrt{3}$

5. A= $(96\sqrt{3}+24\pi)\ u^2$; p = $(24+12\pi)\ u$
Regular hexagon with semicircles attached



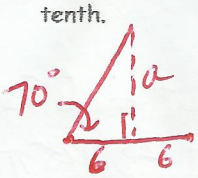
$A_{\bigcirc} = \frac{16\pi}{2} = 8\pi$
$A_{Hex} = \frac{1}{2}ap$
$= \frac{1}{2}(4\sqrt{3})(48)$
$A_{Hex} = 96\sqrt{3}$

6. A= $720\ u^2$ ABCD is a rhombus with AC=18



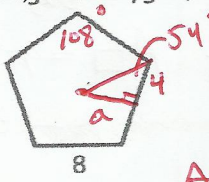
$9^2 + x^2 = 41^2$
$x = 40$
$A = \frac{d_1 d_2}{2} = \frac{(80)(18)}{2}$
$A = 720$

7. A= $891\ u^2$ Find the area of a regular nonagon with sides of length 12 cm. Round to the nearest tenth.



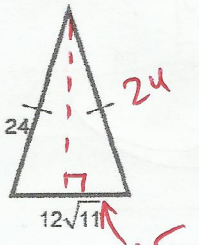
$\tan 70° = \frac{a}{6}$
$a \approx 16.5$
$A = \frac{1}{2}ap$
$= \frac{1}{2}(16.5)(108)$
$= 891$

8. A= $110\ u^2$
Regular Polygon, round to the nearest tenth.



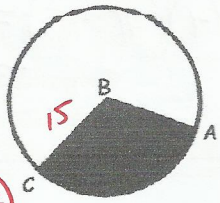
$\tan 54° = \frac{a}{4}$
$a \approx 5.5$
$A = \frac{1}{2}ap = \frac{1}{2}(5.5)(40)$
$A = 110$

9. A= $36\sqrt{55}\ u^2$



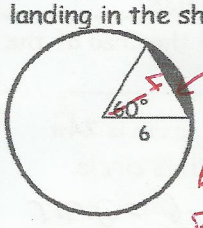
$(6\sqrt{11})^2 + h^2 = 24^2$
$(36\cdot11) + h^2 = 576$
$h^2 = 576 - 396$
$h^2 = 180$
$h = 6\sqrt{5}$
$A = \frac{bh}{2} = \frac{(12\sqrt{11})(6\sqrt{5})}{2}$
$A = 36\sqrt{55}$

10. Given: m∠ABC=100°, CB = 15; A= $62.5\pi\ u^2$
arc length = $\frac{25\pi}{3}$; probability of landing in the shaded area (exact) = $5/18$



$A = \left(\frac{100}{360}\right)(225\pi)$
$Arc = \left(\frac{100}{360}\right)(30\pi)$
$Prob. = \frac{62.5\pi}{225\pi} = 5/18$

11. A= $6\pi - 9\sqrt{3}$ u^2 P = $2\pi + 6$ u^2 probability of landing in the shaded area (nearest hundredth) = .03

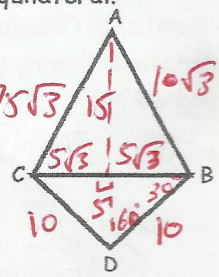


Sector = $\frac{1}{6}(36\pi) = 6\pi$

$\Delta = \frac{bh}{2} = \frac{(6)(3\sqrt{3})}{2} = 9\sqrt{3}$

Perimeter = $(\frac{1}{6})(12\pi) + 6$
$= 2\pi + 6$

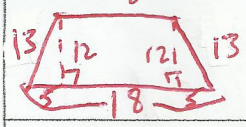
12. A= $100\sqrt{3}$ ΔABC is equilateral. BD=DC=10. m∠DCB = 30°.



$A_{\Delta ABC} = \frac{bh}{2} = \frac{(10\sqrt{3})(15)}{2} = 75\sqrt{3}$

$A_{\Delta DBC} = \frac{bh}{2} = \frac{(10\sqrt{3})(5)}{2}$
$= 25\sqrt{3}$

13. Find the area of an isosceles trapezoid that has bases 8 cm. and 18 cm. and that has legs that are 13 cm. long.



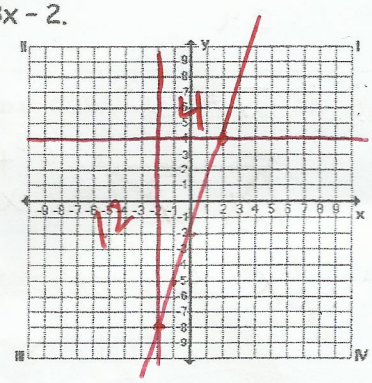
$A = \frac{1}{2}(b_1 + b_2)h$
$= \frac{1}{2}(26)(12)$
$= \boxed{156 \text{ cm}^2}$

14. Find the area of ΔMNP if m = 14, p = 16, and m∠MNP = 63°. Round your answer to the nearest tenth.

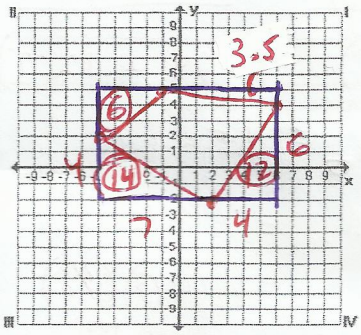
15. Find the area of the triangle bounded by x = -2, y = 4 and y = 3x – 2.

$A = \frac{bh}{2}$
$= \frac{(4)(12)}{2}$

A= $24 u^2$



16. Find the area of the quadrilateral ABCD with coordinates A(-1,5), B(6,4), C(2,-2), D(-5,2).



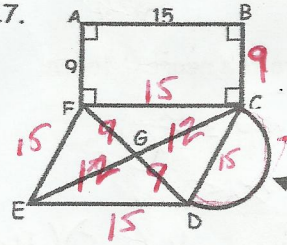
$A = \square - 4\Delta s$

$A_\square = 11(7) = 77$

$A_{\Delta s} = 35.5$

A= $41.5 u^2$

17.



AF=FG; FC=ED=FE=CD.

$A_{rhombus} = \frac{d_1 d_2}{2} = \frac{(24)(18)}{2} = 216$

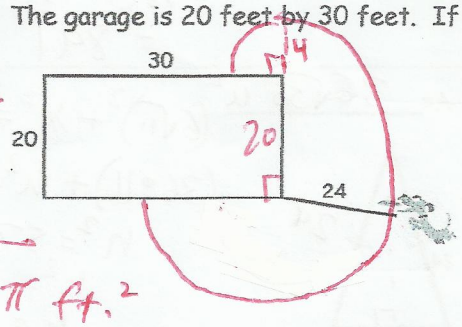
$A_\square = 9(15) = 135$

$A_{\smile} = \frac{1}{2}(7.5^2\pi) = 28.125\pi$

A= $351 + 28.125\pi$ u^2

P = $63 + 28.125\pi$ u

18. Joey has his dog on a leash tied to the corner of the garage. The garage is 20 feet by 30 feet. If the leash is 24 feet long, how much area can the dog access?



A Sector (r = 24) = $(\frac{3}{4})(\pi 24^2) = 432\pi$

A sector (r = 4) = $(\frac{1}{4})(\pi 4^2) = 4\pi$

436π ft.^{2}